National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001

July 12, 2006

Reply to Attn of: Office of the Chief Financial Officer

Ms. Wendy Comes
Executive Director
Accounting and Auditing Policy Committee
441 G Street, NW
Washington, DC 20548

Dear Ms. Comes:

National Aeronautics and Space Administration (NASA) requests that the Accounting and Auditing Policy Committee (AAPC) provides guidance for the accounting treatment of our Agency's space exploration projects (mission-related projects).

With the series of changes to accounting standards governing space exploration projects, including the reclassification of Federal Mission Property in SFFAS No. 23, the existing guidance is unclear regarding the accounting classification of space exploration projects. The lack of clarity of existing accounting guidance has been exemplified by inconsistent and sometimes contradictory opinions from NASA auditors.

Consequently, we believe clarifying guidance from the AAPC regarding the accounting treatment of its space exploration projects is warranted. NASA is not asking for new pronouncements, only clarity on existing standards.

In support of our request, we are attaching the AAPC submission document summarizing the issue and the actions NASA has taken, and a draft of the proposed NASA accounting policy change that details the issues relevant to NASA's treatment of space exploration projects.

We would be more than willing to meet with the AAPC to further discuss this submission and to answer any questions the Committee may have. Please do not hesitate to contact me at (202) 358-0978.

Thank you for your consideration.

Sincerely,

Terry Bowie
Deputy Chief Financial Officer

Enclosures

AAPC ISSUE SUBMISSION

PROPOSED CHANGE IN ACCOUNTING CLASSIFICATION FOR CERTAIN NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) MISSION-RELATED PROJECTS*

ISSUE

(1) Does SFFAS No. 6 currently limit to General PP&E all items previously categorized as "space exploration property"?

(2) Can mission-related projects that do not meet the criteria for General PP&E as defined in SFFAS No. 6, *Accounting for Property, Plant, and Equipment,* be treated as a period expense?

(3) Does the hierarchy of accounting principles for Federal entities permit NASA to apply SFAS No. 2, *Accounting for Research and Development Costs,* in determining whether mission-related projects should be expensed as a period expense?

RELEVANT LITERATURE

The related accounting standards are as follows:

Federal Accounting Standards Advisory Board (FASAB) Accounting Standards:

- SFFAS No. 6, *Accounting for Property, Plant, and Equipment*, par. 23, 46-52
- SFFAS No. 8, *Supplementary Stewardship Reporting*, par. 59, 65-66, 68, 96, 100
- SFFAS No. 11, *Amendments to Accounting for Property, Plant, and Equipment*, par. 2, 4, 6-7, 16-17, 22-23
- SFFAS No. 23, *Eliminating the Category National Defense Property, Plant and Equipment*, par. 9
- SIG No. 23.1, *Staff Implementation Guidance*

Financial Accounting Standards Board (FASB) Accounting Standards:

- Statements of Financial Accounting Concepts (SFAC) No. 6, *Elements of Financial Statements*, par. 25-26

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* Mission-related projects consist of space exploration items that are specifically designed for use in a NASA program, i.e., NASA-developed and/or funded scientific experiments intended to operate outside the atmosphere. Mission-related projects are also referred to as "Theme Projects".

- SFAS No. 2, *Accounting for Research and Development Costs*, par. 8-9, 11, 33, 44

With the series of changes to accounting standards governing space exploration projects, including the reclassification of Federal Mission Property in SFFAS No. 23, the existing guidance is unclear regarding the accounting classification of space exploration projects. In its original form, SFFAS No. 6, *Accounting for Property, Plant, & Equipment*, defined Federal Mission PP&E to include "space exploration property" and required that it be expensed. Subsequently, SFFAS No. 11, *Amendments to Accounting for Property, Plant, and Equipment*, amended SFFAS No. 6, changing the classification of "space exploration property" to General PP&E and requiring that it be capitalized. Most recently, in May 2003, SFFAS No. 23, *Eliminating the Category National Defense Property, Plant and Equipment*, rescinded SFFAS No. 11 and modified SFFAS No. 6, resulting in lack of clarity regarding the accounting treatment of mission-related projects. The lack of clarity has been exemplified by inconsistent and sometimes contradictory opinions from NASA auditors.

Based on research, NASA has determined that two main options provide alternative possibilities for interpreting existing standards and their potential impact on NASA financial statements. Both NASA's OIG and its independent auditors require guidance from the appropriate dispositive body regarding these options prior to NASA's implementation of any change to its current accounting policy, which treats all NASA mission-related projects as General PP&E.

OPTIONS

OPTION 1 – Divide mission-related projects into two accounting categories based on the following:

1. Mission-related projects meeting the characteristics of General PP&E, as defined by SFFAS No. 6 (*Accounting for Property, Plant, and Equipment*), would be capitalized and depreciated.

2. Mission-related projects meeting the characteristics of Research & Development, as defined by SFAS No. 2 (*Accounting for Research and Development Costs*), would be expensed.

Certain mission-related projects consist of objects (e.g. probes) sent into space in order to gather information for as long as the object is functional. The entire objective of the project is to gain new knowledge and the object is merely a vehicle in achieving that end. The knowledge gained, however, cannot be quantified as to financial or economic benefits. Once the object stops functioning (i.e., gathering information), it is obsolete and of no further use. Deep Space missions such as Cassini or Deep Impact are examples of objects that are sent into outer space with no possibility of return. The objective of these projects is the discovery of new knowledge. The objects have no alternative future uses.

NASA's long-term research efforts to gain knowledge may or may not at some future date produce a specific economic output, but may provide scientific benefits in the long-run. In most cases, an essential asset characteristic in SFAC No. 6 that "it embodies a probable future benefit that involves a capacity … to contribute directly or indirectly to future net cash inflows", has not been met. This is due to the high uncertainty of whether the knowledge obtained by the object will provide future economic benefits or even contribute to future net cash flows. Therefore, based on the asset definition and characteristics under FASB, especially its relevance to quantitative financial or economic benefits, these types of objects would not qualify as assets.

SFFAS No. 8 requires that annual costs of R&D investments for the year ended and the four previous years be disclosed, along with a narrative description of each major R&D project. Applied to the expensed mission-related projects, this treatment will enhance NASA's financial reporting by providing information that more closely aligns the dollars invested in specific experimental projects with associated congressional appropriations.

OPTION 2 -- Categorize all mission-related projects as General Property, Plant, and Equipment.

This is NASA's current policy; however, NASA's current approach:

- does not conform to accounting standards related to classification of certain assets and expenses
- limits the value of financial information due to the delayed flow of depreciation costs through the Statement of Net Costs many years after the costs are actually incurred (in the case of Cassini, a mission-related project consisting of a probe designed to explore the outer edge of the solar system, depreciation did not begin until 14 years after initial costs were incurred)
- potentially understates period costs and overstates assets

ACTIONS TO DATE

NASA's Office of the Chief Financial Officer has developed the proposed accounting policy change as summarized in Option 1 and has circulated it for comment to the NASA Audit Committee, OMB, NASA OIG, and independent auditor. The NASA Audit Committee has approved the proposed accounting policy change, OMB concurs with the proposal, and the NASA OIG and independent auditor have required direction from an authoritative standard-setting body.

OTHER ENTITIES

NASA contacted several other Federal agencies to discuss the nature of their R&D efforts and the methods through which those efforts are accounted. NASA discussed with these Federal agencies the manner in which they perform R&D activities and how these activities are accounted for in their financial statements. In addition, NASA reviewed the agencies' FY2005 Performance and Accountability Report to determine if their R&D activities have characteristics similar to NASA's mission-related projects. Based on our discussions and research, NASA found no agencies that have projects with characteristics comparable to NASA's mission-related projects that qualify as General PP&E.

NASA performs both basic and applied research and development. NASA mission-related projects that meet the definition of R&D are projects in search of new knowledge. These projects are considered basic research because their objectives are not to produce a new product or process. NASA will expense all mission-related projects that perform basic research. ISS and Space Shuttle differ from R&D projects in that the research they support primarily has as its objectives specific goals or end items which NASA is trying to develop or improve. For these and other reasons these projects will be capitalized.

The Department of Energy (DOE) is the single largest Federal government supporter of basic research in the physical sciences in the United States. DOE's basic research includes but is not limited to particle physics experiments and simulations of weapons testing. DOE follows the guidance in SFAS No. 2 and expenses all R&D costs for projects performing basic research.

The National Institute of Health (NIH) performs only basic (purely theoretical) research and does not develop a specific product. For example, NIH's biotechnology research program monitors scientific progress in human genetics research in order to anticipate future developments, including ethical, legal, and social concerns, in basic and clinical research involving recombinant DNA, genetic technologies and xenotransplantation. These R&D activities do not result in any products nor do they provide any future economic benefits. Therefore NIH expenses all R&D costs in the period in which they are incurred. NIH accounting policies for R&D make no specific reference to a particular accounting standard. According to discussions with NIH, the Agency indicated that since FASAB standards are silent on the accounting treatment of R&D, they refer to the FASB commercial standards for R&D accounting guidance.

Based on NASA's discussions with these two Federal agencies, NASA found that both agencies conduct only basic research activities which are aimed at the discovery of new knowledge. Accordingly, these agencies follow the guidance contained in SFAS No. 2 when determining the governing criteria for the treatment of their basic R&D costs. This is consistent with NASA's proposed Option 1 to expense basic R&D activities because they do not have a probable future economic benefit which could be identified and objectively measured, nor do they meet the criteria of General PP&E as outlined in SFFAS No. 6.

NASA Theme Assets – FY 2006 Change in Accounting Policy

April 13, 2006

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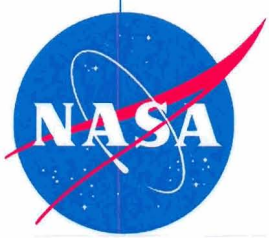

National Aeronautics and Space Administration

NASA Headquarters
Washington, DC

Executive Summary

Purpose

The following proposal provides support under generally accepted accounting principles (GAAP) for appropriately identifying and classifying those Theme Projects that are not properly classified as assets under the classification of General Property, Plant, & Equipment (PP&E). Theme Projects consist of space exploration items that are specifically designed for use in a NASA program, i.e., NASA developed and/or funded scientific experiments intended to operate outside the atmosphere. The underlying concepts of the accounting guidance presented in this paper and viewed collectively support NASA's proposal for characterizing Theme Projects as either General PP&E or Research and Development (R&D).

Recommended Accounting Treatment for Theme Projects

It is our recommendation that NASA's Theme projects be divided into two categories:

1. Theme projects that meet the characteristics of General PP&E as defined by the Federal Accounting Standards Advisory Board (FASAB) Statement of Federal Financial Accounting Standard (SFFAS) No. 6, entitled, "*Accounting for Property, Plant, and Equipment*" Per SFFAS No. 6, General PP&E should be capitalized and depreciated.
2. Theme projects that meet the definition of R&D as defined by the Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards (SFAS) No. 2, entitled, "*Accounting for Research and Development Costs.*"

Based on the underlying concepts of the accounting standards presented in this paper, Theme projects that first meet the definition of an asset, as per FASB Concepts Statement No. 6 (CON6) "Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events", would also meet one or more of the characteristics of General PP&E per SFFAS No. 6 which is defined as any property, plant, and equipment used in providing goods or services. General property, plant, and equipment typically has one or more of the following characteristics:

- it could be used for alternative purposes (e.g., by other Federal programs, state or local governments, or non-governmental entities) but are used by the Federal entity to produce goods or services, or to support the mission of the entity; or
  it is used in business-type activities; or
  it is used by entities in activities whose costs can be compared to other entities (e.g., Federal hospitals compared with other hospitals).

For projects that meet one or more of the above characteristics, NASA will capitalize and depreciate the total project costs once the Theme Project becomes Operational.

Based on the underlying concepts of the accounting standards presented in this paper, Theme Projects that meet the definition of R&D will have the following characteristics:

- A probable future economic benefit cannot be identified and objectively measured at the time that the Theme Project is acquired or constructed.
- Theme Project hardware (i.e.., spacecraft and other equipment) has No alternative future uses.

For Theme Projects that meet the above characteristics, NASA will expense all space exploration costs as incurred. At the inception of each Theme Project, it is unknown to NASA whether the knowledge gained from the project will benefit NASA or society as a whole. Therefore, NASA cannot predict whether they will benefit economically or financially from these projects. This is because long-term research efforts to gain knowledge may provide scientific benefits in the long-run, but may not produce economic or financial benefits. Therefore due to the high uncertainty of future economic benefits, these types of spacecraft would not qualify as assets under the current accounting standards.

Proposal for the Classification of NASA Theme Projects

Purpose

The following proposal provides support under GAAP for appropriately identifying and classifying those Theme Projects that are not properly classified as assets under the classification of General PP&E. The underlying concepts of the following accounting guidance viewed collectively support NASA's proposal for characterizing some Theme Projects as Research and Development (R&D).

Accounting Standards Guidance and Analysis

Background

Currently there is no specific accounting guidance on the classification of space exploration property. In 1998, FASAB classified Space Exploration Property[1] as General Property, Plant and Equipment (PP&E) in SFFAS No. 11, "*Amendments to Accounting for Property, Plant, and Equipment: Definitions*" and also replaced the definition of Federal Mission Property with National Defense (ND) PP&E (paragraph 4). In 2003, FASAB rescinded SFFAS No. 11 in its entirety and reclassified ND PP&E as General PP&E in SFFAS No. 23, *Eliminating the Category of National Defense Property, Plant and Equipment*, paragraphs 5 and 6, respectively. As a result of SFFAS No. 23, no specific guidance exists today on the classification of space exploration property.

In 2004, the Department of Defense (DoD) questioned whether the FASAB actually intended to require that **all** items falling under the ND PP&E definition in SFFAS No. 23 be classified as General PP&E. DoD submitted a discussion paper in July 2004 to the FASAB staff. As a result, Staff Implementation Guidance (SIG) 23.1, Guidance for Implementation of SFFAS 23, *Eliminating the Category National Defense Property, Plant, and Equipment* was released[2]. Under this guidance, ND PP&E was not limited to the category of General PP&E. SIG 23.1 stated that any items not properly classified as General PP&E should be valued in a manner consistent with definitions in existing standards to determine the relevant asset class.

Based on SIG 23.1, NASA believes that FASAB also did not intend on limiting **all** Space Exploration Property to General PP&E as specified in NASA's current policy (Appendix A). NASA believes that some of the space exploration property, generally referred to by NASA as Theme Assets, is appropriately classified under its new policy as General PP&E (see Appendix B). However, certain Theme Projects discussed in this paper should be valued based on definitions in other standards to determine the relevant classification, as DoD was permitted with ND PP&E under SIG 23.1.

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[1] Items that are intended to operate above the atmosphere to explore space and any specially designed equipment to aid, service or operate other equipment engaged in exploring space

[2] See http://www.fasab.gov/pdffiles/sig231.pdf

Asset Definition and Characteristics

The FASB CON6 contains an asset definition and characteristics under *Definitions of Elements.* We refer to FASB guidance first since FASAB has not yet defined elements, however, a project is currently underway by FASAB staff to do so.

FASB CON6

> 25. Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events.

FASB expanded the definition with the following characteristics:

> 26. An asset has three essential characteristics: (a) it embodies a probable future benefit that involves a capacity, … to contribute directly or indirectly to future net cash inflows, (b) a particular entity can obtain the benefit and controls others' access to it, and (c) the transaction or other event giving rise to the entity's right to or control of the benefit has already occurred.[3]

There are certain Theme Projects that meet the above definition of an asset because they have alternative future uses which embodies a probable future benefit to NASA, such as Space Shuttle, International Space Station (ISS), and SOFIA. These Theme projects function in business-type capacity which demonstrates their commercial feasibility and economic viability. These activites could provide a marketplace for providing space products and services to other Federal agencies, private entities, and foreign countries.

Certain Theme projects consist of spacecraft sent into space in order to gather information for as long as the spacecraft is functional. The entire objective of the project is to gain new knowledge and the spacecraft is merely a vehicle in achieving that end. The knowledge gained, however, cannot be quantified as financial or economic benefits. Once the spacecraft stops functioning (i.e., gathering information), it is obsolete and of no further use. Deep Space missions such as Cassini or Deep Impact are examples of spacecraft that are sent into outer space with no possibility of return. The objective of these projects is the discovery of new knowledge. The spacecrafts have no alternative future uses.

Typically long-term research efforts to gain knowledge may or may not produce a specific economic output, but may provide scientific benefits in the long-run. Therefore, an essential asset characteristic in CON6: "(a) it embodies a probable future benefit that involves a capacity … to contribute directly or indirectly to future net cash inflows", has not been met. This is due to the high uncertainty of whether the knowledge obtained by the spacecraft during the Theme

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[3] SFFAS No. 6 Appendix E Glossary similarly defines "assets" as "[t]angible or intangible items owned by the Federal Government which would have probable economic benefits that can be obtained or controlled by the Federal Government entity."

project will provide future economic benefits or even contribute to future net cash flows. Therefore, based on the asset definition and characteristics under FASB, especially its relevance to quantitative financial or economic benefits, these types of spacecraft would not qualify as assets.

General PP&E Characteristics

In addition, SFFAS No. 6, entitled, "*Accounting for Property, Plant, and Equipment*" defines the characteristics of assets classified as General PP&E.

SFFAS No. 6

23. General property, plant, and equipment is any property, plant, and equipment used in providing goods or services. General property, plant, and equipment typically has one or more of the following characteristics:

    it could be used for alternative purposes (e.g., by other Federal programs, state or local governments, or non-governmental entities) but are used by the Federal entity to produce goods or services, or to support the mission of the entity; or
    - it is used in business-type activities; or
    - it is used by entities in activities whose costs can be compared to other entities (e.g., Federal hospitals compared with other hospitals).

There are certain Theme Projects that meet the definition of an asset, as well as the characteristics of General PP&E as outlined above because they do have alternative future uses which embodies a probable future benefit to NASA, such as Space Shuttle, International Space Station (ISS), and SOFIA. These Theme projects function in business-type capacity which demonstrates their commercial feasibility and economic viability. These activites could provide a marketplace for providing space products and services to other Federal agencies, private entities, and foreign countries.

However, the majority of NASA's Theme Projects are in the search of new knowledge. Due to the uncertainties of space exploration and the tentative nature of the value of the knowledge obtained, it would be impractical to state conclusively that the spacecraft associated with these Theme Projects produced goods or services, especially economical or financial in nature. As previously stated, space exploration may produce a scientific output, but may not produce economic or financial benefits. Also, spacecraft (i.e., Cassini or Deep Impact) sent into outer space with no possibility of return cannot be used for alternative purposes.

Also, the majority of NASA's spacecraft are not used in business-type activities nor are they used by entities in activities whose costs can be compared to other entities. This is because there are no other federal or private sector entities that conduct space exploration experiments similar to those conducted by NASA. The entity that engages in activities that are often viewed as similar to those conducted by NASA is DoD. However, none of DoD's activities involve space exploration.

In conclusion, the Theme projects discussed above do not meet the definition and criteria of an asset under FASB or the criteria for General PP&E under FASAB.

Research and Development (R&D) Definition and Characteristics

SFAS No. 2, *Accounting for Research and Development Costs* defines *Research* as:

Paragraph 8:

> *a.* Research is planned search or critical investigation aimed at discovery of new knowledge with the hope that such knowledge will be useful in developing a new product or service or a new process or technique or in bringing about a significant improvement to an existing product or process.

Much of NASA's exploration activities focus on unpredictable discovery and innovation and involve scientific work that has never been done before. This strongly corresponds to the description of *Research* as, "planned search or critical investigation aimed at discovery of new knowledge . . ."

Also NASA's Theme Projects (e.g., Cassini) have a direct correlation to the two examples of R&D activities listed in the Standard:

Paragraph 9

a. Laboratory research aimed at discovery of new knowledge.
b. Searching for applications of new research findings or other knowledge.

FASB further expounded on R&D costs in:

Paragraph 11 (a):

> "The costs of materials . . ., equipment, or facilities that are acquired or constructed for a particular research and development project . . . and that have no alternative future uses (in other research and development projects or otherwise) and therefore no separate economic value are research and development costs at the time the costs are incurred.

Paragraph 33

> . . . The Board reasoned, however, that if materials, equipment, or facilities are of such specialized nature that they have no alternative future uses, even in another research and development project, those materials, equipment, or facilities have no separate economic values . . .

Certain NASA spacecraft are merely vehicles in achieving the objectives of the Theme Project to gain new scientific knowledge. The search for new knowledge can be defined as basic research,

which is defined by SFAS No. 2 paragraph 26 as original investigations for the advancement of scientific knowledge not having specific commercial objectives. Once the spacecraft stops functioning, it becomes obsolete and is of no further use to any other Theme projects. Therefore, these spacecraft meet the criteria in paragraphs 11 and 33 of having ***no alternative future uses*** and thus, have *no separate economic value*. Also, the Board discussed measurability below in the context of the definition and characteristics of an asset,

Paragraph 44

> The criterion of measurability would require that a resource not be recognized as an ***asset*** (emphasis added) for accounting purposes unless at the time it is acquired or developed its future economic benefits can be identified and objectively measured.

As previously discussed, the future benefits of certain Theme Projects cannot be identified with certainty and thus cannot be objectively measured. As a result, they do not meet the definition and characteristics of an asset.

Recommended Accounting Treatment for Theme Projects

It is our recommendation that NASA's Theme Projects be divided into two categories:

1. Theme Projects that meet the characteristics of General PP&E under SFFAS No. 6 are Theme projects that are deemed to have alternative future benefits/uses and are those in space or on the ground such as Space Shuttle or the International Space Station (described in Appendix B).
2. Theme Projects that meet the definition of R&D.

Based on the underlying concepts of CON6, SFFAS No. 6 and SFAS No. 2, Theme Projects that meet the definition of R&D will have the following characteristics:

- A probable future benefit cannot be identified and objectively measured at the time that the Theme project is acquired or constructed.
- The Theme Project equipment (i.e.., spacecraft and other equipment) has no alternative uses.

For Theme Projects that meet the above characteristics, NASA will expense all space exploration costs as incurred per SFAS No. 2, paragraph 12, "*All research and development costs encompassed by the Statement shall be charged to expense when incurred*".

This treatment will recognize the uncertainty as to the existence and timing of the future benefits and the fact that the hardware supporting these missions has no alternative future uses. This is because the entire objective of the Theme Project is to gain new knowledge, which cannot be quantified as a financial or economic benefit, however may produce a scientific output. NASA believes that the recognition and measurement requirements of SFAS No. 2 result in reporting

financial information that is more relevant and timely than the capitalization of all costs under the current policy.

Discussion of Matching Costs to Benefits

FASB issued SFAS No. 2 to reduce the number of different accounting and reporting practices used to account for R&D and to provide useful financial information about R&D costs[4]. In addition, its conservative nature reduced the tendency for entities to overstate their assets and under report their period expenses.

Due to the high degree of uncertainty of the economic or financial benefits associated with space exploration missions with no alternative future use and the timing of the benefits realized by these missions, even an indirect cause and effect relationship can seldom be demonstrated. There is generally no direct or even indirect basis for relating costs to benefits. The principles of "associating cause and effect" and "systematic and rational allocation" cannot be applied to certain Theme Project costs that have no future economic or financial benefits. That is, the "matching" principle of matching an entity's expenses against its economical benefits (i.e., the efforts against the accomplishments) in the appropriate accounting period cannot be applied to space exploration costs. In fact, the uncertainty regarding future economical or financial benefits at the time the costs are incurred indicates that the "immediate recognition" principle of expense recognition should apply.

In assessing its options for classifying hardware used to support R&D missions, NASA considered the high degree of uncertainty associated with its Space Exploration missions and the timing of the economic or financial benefits realized by these missions and concluded that there is generally no direct or even indirect basis for relating costs to benefits. That coupled with the lack of alternative future uses for the hardware provides the basis for NASA's decision to apply the principle of "immediate recognition" to certain space exploration costs.

Implementation of Revised Policy

Projects that are Operational

As of October 1, 2005 NASA has 63 Theme Assets that are Operational, of which 29 are not yet fully depreciated. NASA will apply the new accounting policy to Theme Assets that were operational as of October 1, 2005. For those Theme Projects that meet the General PP&E criteria, NASA will continue to display them as assets on the balance sheet; at the current recorded values. Examples of these assets are the Space Shuttle and International Space Station (ISS). For R&D projects that meet the R&D criteria previously outlined, such as Cassini, they will be expensed.

Projects Currently Reported in Assets Under Construction (AUC)

NASA will implement the new accounting policy for all projects reported in AUC as of October 1, 2005. As of October 1, 2005, there were 56 projects reported in AUC. NASA will perform

[4] Other agencies that also perform R&D, such as DoD, have based their R&D policy on this commercial standard.

an in-depth analysis of the projects currently in AUC to determine whether the project should be expensed based on the criteria for R&D, as previously outlined. This determination will be based on a review of the Project Plan and through discussions with the individual Project Managers at project inception.

Conversely, for Theme Projects in AUC that are determined to meet the General PP&E criteria for capitalization, costs and their associated Work Breakdown Structure (WBS) will be analyzed on a per project basis in order to determine what portion of the costs should be expensed and what should be capitalized. An example of an AUC project which meets the criteria of General PP&E is SOFIA.

New Projects

For new projects beginning on or after October 1, 2005, the R&D criteria as previously outlined will be used to determine the projects' classification as an R&D project or as a Theme Asset project classified as General PP&E. This determination will be made at the project inception and will be based on a review of the Project Plan with the individual Project Managers. For projects that are determined to be R&D all costs will be expensed in the period in which they are incurred. For projects that meet the capitalization criteria, costs and the WBS will be analyzed on a per project basis to determine what portion of the costs will be expensed and/or capitalized.

NASA recently completed a Data Standardization Effort, identifying eleven Level 2 WBS Requirements. The requirements of the WBS Standard elements have been defined in the NASA Procedural Requirements (NPR) 7120.5C, *NASA Program and Project Management Processes and Requirements.* Once the standardized WBS Structure is implemented (effective for all new projects beginning October 1, 2005), all Level 2 requirements will be the same for all flight projects. The standardized structure will enable NASA to identify and analyze costs in order to determine the appropriate accounting treatment.

Additional Reporting Requirements

SFFAS No. 8, Supplementary Stewardship Reporting requires that annual investments in R&D costs for the year ended and the four previous years be disclosed, along with a narrative description of each major R&D program. NASA will expand its RSSI disclosure. For each major R&D program the expanded disclosure will include all previous year's cost from the inception of a project, as well as the current year expenditures to provide users a better understanding of the total cumulative project costs.

By expanding the RSSI disclosures NASA will be providing readers of its financial statements expanded information that more closely aligns the dollars vested in specific experimental projects with those dollars provided through congressional appropriations.

Theme Assets

NASA's current accounting policy is to classify all Theme Assets as General PP&E per SFFAS No. 6. All Theme Assets costs are capitalized from the inception of a project through the date in which the project becomes Operational. Operational is defined as when the project begins to provide mission data. Costs are accumulated in Assets Under Construction (AUC), formerly known as Work-in-process (WIP), until the project becomes operational. Once the project becomes Operational, the cumulative costs are removed from AUC, capitalized and depreciated over the life of the mission. NASA's minimal capitalization criterion for PP&E requires a useful life of 2 years or more and an acquisition value of $100,000 or more.

NASA's current policy is predicated on two presumptions. The first presumption is that the investments in exploration equipment are recognized as expenses on the basis of a presumed direct association with specific benefits. Recognition of costs as expenses accompanies the realization of the benefits. The second related presumption is that the exploration equipment will have alternative future uses and will provide future benefits for several periods. Thus, the current policy provides for systematic allocation of costs through depreciation to the periods for which the benefits are expected to be realized.

Deep Space missions such as Cassini or Deep Impact are examples of Theme Projects that are not properly classified as General PP&E in NASA's current policy. These spacecraft are sent into outer space with no possibility of return. The objective of these projects is the discovery of new knowledge. The spacecrafts have no alternative future uses and are not reusable or repairable. They have no separate economic value. The value is in the knowledge gained as a result of the experiment. The knowledge gained is intangible.

Based on the current policy, NASA accumulates the costs of these projects in AUC until they reach their destination and become operational and only then does NASA begin recognizing the costs through depreciation. As an illustration, NASA will not begin depreciating the Cassini mission until fourteen years after NASA began incurring costs because it took seven years to build the Cassini experiment and it will take another seven years for the experiment to reach its destination and transmit data. Cassini is expected to transmit data for four years after it reaches its destination. However, the benefits, if any, realized from the Cassini or other exploration mission do not generally coincide with the period the mission is operational. In some cases the benefits of such missions will not be realized until long after the mission ceases operation.

Deferring the costs of these experiments until the experiments become operational and then recognizing the costs through depreciation for the periods the mission is operational does not provide users of NASA's financial statements with relevant timely information about NASA's operating performance because the benefits, if any, realized from the exploration mission do not generally coincide with the period the mission is operational. Also, accumulating the costs of these missions in AUC (in the Cassini example it is 14 years) until the mission becomes operational results in NASA's statement of net cost being significantly understated and NASA's balance sheet being significantly overstated for extended periods. An analysis of NASA's current inventory of AUC reveals that the costs of 36 of the 56 projects currently reported under

construction will remain in AUC for substantially more time than the project's period of operation (i.e., the amortization period).

In FY 2005, NASA performed an in-depth study of the nature of Theme Asset project costs. From this analysis, it was determined that the current accounting policy to capitalize all costs did not recognize the experimental nature of NASA's space missions and the uncertainty surrounding the future benefits of these missions. NASA's goals are long term, and much of their work focuses on unpredictable discovery and innovation and most of NASA activities involve work that has never been done before, technology that has not been developed yet, and programs and projects that involve complex, high-risk research and development work. The high degree of uncertainty associated with the existence and timing of future benefits arising from these exploration activities casts doubt on the relevance of the information reported under the current policy.

A significant portion of the programs and projects carried out by NASA to achieve its missions are devoted to the discovery of new knowledge. Because of its emphasis on the discovery of new knowledge, NASA recently reviewed its methodologies and practices for classifying the costs incurred to carry out its research programs and projects. The equipment NASA uses to carry out its research projects are generally referred to as Theme Assets. Theme Assets are property, plant and equipment (PP&E) that are specifically designed to perform activities in support of NASA's four missions, which are 1) Exploration Systems, 2) Space Operations, 3) Science and 4) Aeronautics Research.

The review included an evaluation of the capitalization policy for Theme Assets to determine if the policy reflects NASA's significant investment in activities aimed at the discovery of new knowledge and if the treatment of the investments in these projects is consistent with Statement of Financial Accounting Standards (SFAS) No. 2, entitled "Accounting for Research and Development Costs". The review also considered whether the current policy provides users of NASA's financial statements with timely relevant information about NASA's operating performance. Finally, NASA's FY 2004 & 2005 financial statement auditors and NASA's Inspector General encouraged the review by recommending in their *Report on Internal Control*, that, "NASA fundamentally revisit its approach to capitalizing property."

Guiding NASA's review was the recognition that although many federal and private sector entities are engaged in activities aimed at the discovery of new knowledge, none of those other federal or private sector entities conducts Space Exploration experiments similar to those conducted by NASA. The entity that engages in activities that are often viewed as similar to those conducted by NASA is the Department of Defense (DoD). However, none of DoD's activities involve Space Exploration.

Theme Projects that Meet General PP&E Classification

Theme Projects that do have alternative future benefits/uses are those in space or on the ground that meet the characteristics of General PP&E. The costs incurred to build these assets should be capitalized and depreciated over the project's estimated useful life, in accordance with the requirements for General PP&E. These projects meet the criteria for General PP&E as stated in SSFAS No. 6, paragraph 23, "The General PP&E category consists of items that: could be used for alternative purposes (e.g., by other Federal programs, state or local governments, or non-governmental entities) but are used by the Federal entity to produce goods or services, or to support the mission of the entity." Additionally, these projects do not meet the criteria for being expensed as R&D. According to SFAS No. 2 paragraph 11.a, "The costs of materials, equipment or facilities that are acquired or constructed for research and development activities and that have alternative future uses (in research and development projects or otherwise) shall be capitalized as tangible assets when acquired or constructed." Therefore, for Theme Projects with an alternative future use, the costs will continue to accumulate in AUC and will be capitalized at the time the asset becomes operational.

Current NASA Theme Projects with alternative future uses intended to operate above the atmosphere to explore space are the Space Shuttle, International Space Station (ISS), and SOFIA. The determination of ISS, Space Shuttle, and SOFIA as having alternative future uses was based on our interviews with the respective project managers, an in-depth review of the overall mission for each project, the nature of their operations and the conclusion that each of these projects meets the definition of General PP&E as provided by SFFAS No. 6. See a detailed discussion of each project below:

International Space Station (ISS)

The International Space Station is a joint effort between NASA and its International Partners (Partners). ISS was designed to provide a platform for scientific experiments and the development of space products and services. Scientific experiments and other activities performed onboard ISS results in new information which may lead to future economic benefits for all users.

An International Agreement was signed by each Partner identifying the elements in which they would contribute to ISS. As part of the International Agreement, each Partner is allocated a portion of the ISS user elements and resources (consistent with their contributions) in order to conduct scientific research, for either internal use or for outside parties. The Partners retain the right to barter, sell, or utilize any portion of their respective allocations. This entitles NASA to enter into business-type activities by contracting with Federal agencies or private entities for the utilization of ISS resources. These business-type activites could provide a probable future economic benefit that can be identified and objectively measured.

These activities demonstrate the commercial feasibility and economic viability of ISS and could potentially establish a marketplace for providing space products and services to other Federal agencies, private entities, and foreign countries. Based on the nature of activities performed by

the ISS, it meets the definition of General PP&E and therefore should be capitalized and depreciated in accordance with SFFAS No. 6.

Space Shuttle

The NASA Space Shuttle is used in various business-type activities. Over the history of the Space Shuttle Program NASA has flown various kinds of payloads under reimbursable agreements. In the early 1980's, NASA signed "Launch Services Agreements" with private companies (e.g. American Satellite Company, Satellite Business Systems) for the launch of communication satellites from the Shuttle[5]. Also, a number of Spacelab and reimbursable Spacehab modules (Shuttle unique payloads) were flown for foreign government entities with the last such mission in 1993. Since then, secondary and tertiary payloads (payloads which are not the main purpose for the Shuttle flight), which flew on a space- available basis, have regularly reimbursed NASA for Shuttle related services. Small Self-Contained Payloads were charged for on a fixed price basis (e.g. $10K for a domestic educational institution). DoD also flew experiments as part of the payload compliment on another type space available payload and reimbursed NASA for carrier related activities.

Based on discussions with the Space Operations Mission Office, the Program has indicated that portions of the Space Shuttle propulsion elements (External Tank, Space Shuttle Main Engines, Solid Rocket Booster) including machinery, flight hardware, and tooling will be used in the future by the Constellation Crew Exploration Vehicle (CEV) and Crew Launch Vehicle (CLV) programs for development, testing and flight.

NASA has benefited economically from the Space Shuttle for a significant portion of the Shuttle operations. In addition, the Space Shuttle is still being used in business-type activities with NASA's International Partners. Based on the nature of activities performed by the Space Shuttle, it meets the definition of General PP&E and therefore should be capitalized and depreciated in accordance with SFFAS No. 6.

SOFIA

Another example of a General PP&E asset that is intended to operate above the atmosphere to explore space is the Stratospheric Observatory for Infrared Astronomy (SOFIA), a telescope mounted onto a specially designed Boeing 747. The project has considered the use of SOFIA as a platform for pursuits other than its primary mission of astronomy/astrophysics. According to SOFIA's Project Manager, a concept has been developed for SOFIA to be used for Earth Science investigations, simultaneously with SOFIA's prime mission. Also, additional in depth studies include using SOFIA as an experimental platform to test high bandwidth communications with Mars spacecraft or as a testbed for high-bandwidth earth communications. SOFIA has numerous possibilities for future uses and is therefore reusable for future endeavors. Also, SOFIA has the ability to return to earth repeatedly, making it repairable.

[5] As a matter of national policy, this ended after the loss of the Space Shuttle Challenger when the Shuttle was prohibited from flying such customers which could be launched on Expendable Launch Vehicles.

These projects meet the characteristics of General PP&E under SFFAS No. 6 and do not meet the criteria of R&D as outlined in SFAS No. 2. Therefore, ISS, Space Shuttle, and SOFIA can all be classified as assets according to the definition of General PP&E and should be capitalized and depreciated.

Theme Projects that Meet the R&D Definition

For Theme Projects that have no alternative future uses and meets the definition of R&D as defined and discussed above, NASA will expense all space exploration costs as incurred per SFAS No. 2, paragraph 12, "*All research and development costs encompassed by the Statement shall be charged to expense when incurred*".

This treatment will recognize the uncertainty as to the existence and timing of the future benefits and the fact that the hardware supporting these missions has no alternative future uses. This is because the entire objective of the Theme Project is to gain new knowledge, which cannot be quantified as a financial or economic benefit, however may produce a scientific output. NASA believes that the recognition and measurement requirements of SFAS No. 2 result in reporting financial information that is more relevant and timely than the capitalization of all costs under the current policy.

Due to the high degree of uncertainty of the economic or financial benefits associated with space exploration missions with no alternative future use and the timing of the benefits realized by these missions, even an indirect cause and effect relationship can seldom be demonstrated. There is generally no direct or even indirect basis for relating costs to benefits. The principles of "associating cause and effect" and "systematic and rational allocation" cannot be applied to certain Theme Project costs that have no future economic or financial benefits. That is, the "matching" principle of matching an entity's expenses against its economical benefits (i.e., the efforts against the accomplishments) in the appropriate accounting period cannot be applied to space exploration costs. In fact, the uncertainty regarding future economical or financial benefits at the time the costs are incurred indicates that the "immediate recognition" principle of expense recognition should apply.

In assessing its options for classifying hardware used to support R&D missions, NASA considered the high degree of uncertainty associated with its Space Exploration missions and the timing of the economic or financial benefits realized by these missions and concluded that there is generally no direct or even indirect basis for relating costs to benefits. That coupled with the lack of alternative future uses for the hardware provides the basis for NASA's decision to apply the principle of "immediate recognition" to certain space exploration costs.

Other Federal Agency Practices

NASA contacted several other Federal agencies to discuss the nature of their R&D efforts and how those efforts are accounted for. We discussed with these Federal agencies the manner in which they perform R&D activites and how these activites are accounted for in their financial statements. In addition, we reviewed the agencies' FY2005 Performance and Accountability

characteristics comparable to NASA's Theme Projects that qualify as General PP&E.

NASA performs both basic and applied research and development. NASA Theme Projects that meet the definition of R&D are projects in search of new knowledge. These Projects are considered basic research because their objectives are not to produce a new product or process. NASA will expense all Theme Projects that perform basic research. ISS and Space Shuttle differ from R&D projects in that the research they support primarily has as its objectives specific goals or end items which NASA is trying to develop or improve. For these and other reasons these projects will be capitalized.

The Department of Energy (DOE) is the single largest Federal government supporter of basic research in the physical sciences in the United States. DOE's basic research includes but is not limited to particle physics experiments and simulations of weapons testing. DOE follows the guidance in SFAS no. 2 and expenses all R&D costs for projects performing basic research.

The National Institute of Health (NIH) performs only basic (purely theoretical) research and does not develop a specific product. For example, NIH's biotechnology research program monitors scientific progress in human genetics research in order to anticipate future developments, including ethical, legal, and social concerns, in basic and clinical research involving recombinant DNA, genetic technologies and xenotrasnplantation. These R&D activities do not result in any products nor do they provide any future economic benefits. Therefore NIH expenses all R&D costs in the period in which they are incurred. NIH accounting policies for R&D make no specific reference to a particular accounting standard. According to discussions with NIH, the Agency indicated that since SFFAS is silent on the accounting treatment of R&D, they refer to SFAS for R&D accounting guidance.

Based on NASA's discussions with these two Federal agencies, we found that both agencies conduct only basic research activities which are aimed at the discovery of new knowledge. Accordingly, these agencies follow the guidance contained in SFAS No. 2. when determining the governing criteria for the treatment of their basic R&D costs. This is consistent with NASA's new policy to expense basic R&D activites because they do not have a probable future economic benefit which could be identified and objectively measured, nor do they meet the criteria of General PP&E as outlined in SFFAS No. 6.